



WHITE PAPER

Simplifying fulfillment's 'last move' with 'rack-to-shelf' equipment options



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Over the past decade, retailing has undergone massive change. The explosion in e-commerce—still expanding in the U.S. market by nearly 10 percent¹ annually—when combined with the adoption of omni-channel fulfillment strategies has fundamentally changed the distribution landscape.

The days of a DC shipping out full pallets of goods to larger retail stores, where the goods would sit and wait for consumers to do the bulk of their shopping, is no longer the only model. Internet retailers led by Amazon have grabbed much of the consumer dollar, while retail giants such as Wal-Mart have countered by allowing consumers who buy online to do pick-up at the store.

According to a report from McKinsey Insights², 40 percent of Best Buy's and more than 50 percent of Wal-Mart's online sales are already picked up in stores. In fact, more DC operations are supporting these omni-channel processes. According to a recent survey by Peerless Research Group³ of professionals involved in warehousing and distribution, 75 percent of respondents said that they were currently supporting more than one selling channel.

Few observers would dispute the impact of these e-commerce and omni-channel trends. The real issue is how to best adapt to them. While companies have invested in new types of order management systems, warehouse automation, and item picking solutions to adapt to the changes, one area that tends to be overlooked is the electric forklifts, pallet trucks, and other equipment for moving and loading/unloading goods.

In many cases, companies are trying to cope with the new challenges using the

same types of lift trucks, pallet trucks, tuggers and other equipment which have been used in warehouses for decades, notes Bill Pedriana, director of sales and marketing with Big Lift LLC, the maker of Big Joe Forklifts.

“A company can invest in all sorts of systems for order visibility, inventory management, or automated sortation,” says Pedriana. “But if the ‘last move’ in the ‘last mile’ is still being done with equipment that’s remained unchanged for decades, those final moves will be inefficient.”

The “rack-to-shelf” concept

As a result of these new fulfillment trends, a central challenge in today's market is the need for rapid replenishment of smaller quantities of goods driven not only by picking for e-commerce, but also by deeper changes in retailing and consumer goods supply chains.

For example, with consumers able to buy staples such as milk, office supplies, aspirin, or paper plates at chain pharmacies or convenience stores, mainstream retailers are finding that they must stock more specialized goods that will draw consumers into their stores—while also stocking the staples.

Just think of the needs in the rapidly growing dollar store segment, which, according to a report from Deloitte⁴, saw sales grow by 10 percent annually from 2003 to 2012 with store numbers growing from 13,403 to 21,555. For this type of store, frequent replenishment of items spanning many possible SKUs is the norm.

When you combine these changes in retailing, the end result is more materials handling in the “last moves” of the “last mile.”

This brings with it some specific challenges, including:

- While highly automated systems may serve well at some DCs, for others, they are too costly or inflexible. In those cases, item picking for e-commerce often relies on manual order picking to a cart or onto a pallet. Excess materials handling must be minimized in these order-picking scenarios.
- With retailers needing frequent replenishment of smaller shipments picked from a massive pool of potential SKUs, there exists multiple picking, loading and unloading processes involved in getting goods all the way from the racks in the warehouse to the shelves in a store. These are the discrete steps managers need to consider when moving to the “rack-to-shelf” concept.
- The last moves in some direct-store delivery (DSD) scenarios, such as beverage distribution, have some glaring inefficiencies. Drivers have to manually unload goods from the vehicle onto a hand cart which, while difficult to push, can fit through doorways. Once inside the store, the driver typically also needs to manually restock a cooler, a shelf or a display area from the

hand cart resulting in quite a bit of labor.

The remedy for these inefficiencies comes back to minimizing the amount of mate-

“The Joey (left) can smoothly navigate through aisles, can be driven while elevated, and the operator can quickly lower the platform to place items into the cart being pulled by the vehicle.”

—Bill Pedriana, director of sales and marketing, Big Lift LLC



rials handling. This can be accomplished through the use of equipment options that support a streamlined “rack-to-shelf” process. Under this concept, new types of moving/lifting equipment, combined with totes or half pallet configurations, can be used to cut entire steps from the overall process.

New equipment options

Within a DC supporting e-commerce orders, a common problem is to simplify the process of picking small orders from the racks. While fast moving goods can be picked more efficiently from floor level, the only space-feasible method is to expand upward when you consider the sheer number of SKUs in an e-commerce fulfillment operation.

But picking e-commerce orders from racks can be inefficient. “The problem with using multiple pieces of conventional equipment for e-commerce order picking is the need to stop, elevate, return to ground level, place the items in a cart, then move to the next pick area,” says Pedriana. “Then back at the parcel shipping station, there may be a need to transfer items to a different container.”

But what if there were a multi-purpose vehicle that could minimize the number of moves or the need to switch off from one piece of equipment to another? In 2013, Big Lift introduced the “Joey” Task Support Vehicle to meet such needs.

The Joey combines attributes of elevated work platforms, order pickers and tuggers in a compact vehicle that can lift an operator as much as 162 inches from the floor, turn around in as little as 72 inches, and can be driven at height to move from task to task.

“The Joey can smoothly navigate through aisles, can be driven while elevated, and the operator can quickly lower the platform to place items into the cart being pulled by the vehicle,” says Pedriana. “When the operator is done picking, the cart can be dropped off at a parcel shipping station or an outbound dock.”

With compact, lightweight pallet trucks and half pallets (right), the DC can efficiently build up the half pallets with the proper mix of goods, arranged in the order that they'll be unloaded in the store.



Besides e-commerce order picking, the Joey also can support retail replenishment. Some companies may pick to carts at the DC that can be rolled directly onto trailers and then right into a store.

Essentially, with carts or containers to support rack-to-shelf processes, the DC is taking over more of the work that would need to happen at the store level. “The rack-to-shelf concept really comes down to taking all sorts of extra touches out of the equation,” says Pedriana.

Store delivery efficiencies

In some cases, rolling carts might not be the ideal container for rack-to-shelf fulfillment. To support DSD of beverages or other goods to

convenience stores or retail outlets, some companies are beginning to use half pallets that are picked at a DC with an eye toward how the goods will be stocked at a particular store.

In some cases, a half pallet can even serve as an end-of-aisle display—precluding the need to unload at the store level. With an end-of-aisle half pallet, it's simply a matter of dropping off the pallet at the right spot in the store and collecting the empty pallet at a later date.

Traditionally, much of the DSD for beverages has been done with hand carts, as a cart can easily fit through the front door. However, this involves manual picking of the goods, with drivers working truck side to load each hand cart, wheel it inside, unload, and return for another load. Pre-picked half pallets eliminate this truck-side operation. And because half pallets can hold a substantial amount of goods, the process reduces the number of trips into a store.

The key enabler for the use of half pallets in DSD fulfillment is a lightweight, compact, electric pallet truck. Big Joe offers two products aimed at this need—the D40, a compact truck that can handle 4,000 lbs., and the E30, a pallet truck that can handle 3,000 lbs. Both are light and compact, which makes them gentle on tile floors in stores—and, most importantly, makes it possible to fit the units through tight door spaces. In fact, an E30 can be provided with a 22-inch chassis width.

With compact, lightweight pallet trucks and half pallets, the DC can efficiently build up the half pallets with the proper mix of goods, arranged in the order that they'll be unloaded in the store. This saves time and labor in the crucial “last moves,” and in the process, makes working conditions much more ergonomic for DSD drivers.

The E30 is a pallet truck that can handle 3,000 lbs. It is light and compact, which makes them gentle on tile floors in stores—and, most importantly, makes it possible to fit the units through tight door spaces.



“Last move” conclusions

The fundamental changes being driven by e-commerce and omni-channel strategies are putting a premium on rapid, efficient replenishment of small quantities picked from many potential SKUs. Analyst firm IDC Retail Insights⁵ estimates that by 2016, 50 percent of national retailers will invest in distributed order management (DOM), enterprise inventory visibility, and workforce management to enable same-day fulfillment.

Investments in higher-level fulfillment systems may be part of the answer to these big shifts in fulfillment, but it's important not to overlook “last move” solutions for getting the goods out to consumers in the most efficient manner.

Use of new, innovative types of equipment, such as multi-purpose vehicles for e-commerce order picking and compact electric pallet trucks capable of easing half-pallet loads right to the point of sale, eliminate extra touches from rack to shelf.

Think of it this way: Managers responsible for warehouse and direct-store delivery environments have no choice in regard to megatrends in fulfillment. There is simply the need to get smaller orders—often at the item level—out to consumers and stores at

a much quicker pace than in years past.

They can try to adapt the same types of lift trucks and pallet trucks that have been around for decades, or consider a new generation of compact, lightweight and multi-purpose lift and order-picking equipment to take on rack-to-shelf challenges in the most efficient way.

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